Author Index

Abul-Magd, A. Y. 15
Afek, Y. 52
Agassi, D. 280, 324, 337
Alhassid, Y. 13
Alliluev, S. P. 509
Amsden, A. A. 59
Amundsen, P. A. 569
Anastasio, M. R. 143
Anholt, R. 568, 584
Antonenko, V. G. 173
Artukh, A. G. 82
Ashkorov, O. 84
Auger, P. 83
Avashai, Y. 329
Awes, T. C. 34
Ayik, S. 280

Backe, H. 561, 589, 592
Baldin, A. M. 73
Ball, J. B. 41
Bannik, B. P. 52
Bastard, G. 514
Baumgardt, H. G. 64, 136, 139, 155, 169, 172, 175, 180, 184
Baym, G. 6, 133, 149
Beck, F. 580
Behncke, H. H. 549, 584
Beiser, F. 38
Belyaev, S. T. 259
Benecke, J. 30
Benenson, W. 69
Berlanger, M. 27
Bertrand, F. 29, 60
Bertsch, G. 17, 23, 53, 157
Bethe, H. A. 6
Betz, W. 548
Bhalla, K. B. 47
Birkelund, J. R. 21, 347
Biswas, N. N. 78
Bjorken, J. D. 84
Blann, M. 35, 39
Blocki, J. 10
Bock, R. 5,269
Bodmer, A. R. 59, 143
Boggild, H. 30
Bohning, H. 36
Bonche, P. 32, 42
Bondorf, J. 8, 10, 15, 23, 25, 29, 35, 38, 59, 267
Born, M. 538
Bosch, F. 587
Brack, M. 258, 259
Brink, D. M. 337
Broglia, R. A. 230, 314, 324, 332, 342
Bromley, D. A. 79
Brosa, U. 27
Brown, G. E. 133, 143, 456, 465
Brown, L. S. 537
Buchwald, G. 165
Butler, G. W. 82

Campbell, D. K. 110
Campi, X. 82
Case, K. M. 509
Chapline, G. F. 57, 59, 133, 157
Cheng, K. T. 537, 555
Chin, S. A. 57, 84
Chodos, A. 149, 150
Cocconi, G. 71
Cochran, D. R. 68
Cohen, S. 32
Collins, J. C. 133, 149
Cronin, J. W. 110
Cugnon, J. 59
Cumming, J. B. 30

Dalitz, R. H. 153
Darwin, G. C. 508
de Boer, J. 368
Demkov, Y. N. 584
Desiderio, A. M. 537
de Vries, R. M. 34
Dhar, A. K. 17
Doll, P. 28
Dosch, H. G. 540
Dyer, P. 34

Efremov, A. V. 123
Epperson, D. H. 264, 271
Erickson, G. W. 537
Ericson, T. E. O. 189, 231
Essel, H. 241, 248
Eyal, Y. 230
Ezell, C. 72

Fano, U. 510
Feenberg, E. 5, 81, 142
Fermi, E. 44
Feshbach, H. 11, 14, 54, 84
Feynman, R. P. 30, 324, 331
Flynn, K. F. 261
Fowler, G. N. 7, 78, 163
Fox, R. F. 326
Fraenkel, S. 74
Franco, V. 469
Frazer, W. B. 30
Freedman, B. 150, 153
Freier, P. 5
Fricke, B. 510, 535
Fujioka, G. 110, 114
Fulcher, L. 529
Fung 6, 52, 56, 71, 72, 157

Gaidos, J. A. 42
Gaisser, T. K. 5, 7
Galin, J. 199, 202
Galitsky, V. M. 158
Garpman, S. I. 42
Garvey, G. T. 81
Gazzaly, M. M. 65
Gelbke, C. K. 9, 11, 14
Gershtein, S. S. 510, 514
Gindler, J. E. 261
Glendenning, N. K. 5, 57
Goldhaber, A. S. 5, 11, 14, 57, 465
Gordon, W. 508
Gosset, J. 44, 45, 53

Gottschalk, P. A. 42, 75
Grammaticos, B. 83
Greenberg, J. S. 549, 568, 585
Greiner, D. E. 11, 19, 64, 148, 190, 587
Griffin, J. J. 40, 475
Grimes, S. M. 479
Gross, D. H. E. 213, 324, 334, 342
Gupta, R. K. 264
Gustafsson, C. 259
Gutbrod, H. H. 45, 56, 65, 67
Gyulassy, M. 44, 52, 75, 78, 134, 148, 535, 537, 555

Hagedorn, R. 79, 162, 190
Hanbury-Brown, R. 7, 71
Harbour, R. M. 261
Harp, G. H. 24
Heckman, H. H. 31
Heinz, H. 133, 157
Ho, H. 44
Hoffmann, D. C. 57, 136, 140, 261, 332
Hofmann, J. 6, 134, 158, 172, 173, 191
Hufner, J. 15, 21, 47
Huizenga, J. R. 204, 207, 211

Inamura, T. 231
Irvine, J. M. 6, 143
Iwamoto, A. 261
Iwe, H. 59

Jackson, D. F. 31
Jacobsson, B. 52, 69
Jakubassa, D. H. 582
Jancovici, B. 343
Johansen, P. J. 19
Johnson, K. 84
Jones, L. 84

Kapusta, J. I. 163
Kaufmann, R. 198
Keister, B. D. 133, 149
Kerman, A. K. 476
Kienle, P. 564, 582
Kirsch, J. J. 549
Kisslinger, L. S. 189
Kitazoe, Y. 61
Kittel, C. 48
Klapisch, R. 82
Knoll, J. 53
Ko, C. M. 73
Köhler, S. 311
Koonin, S. E. 68, 71, 342
Kozhuharov, C. 587, 589, 593
Kullberg, R. 39, 69

Laasanen, A. T. 5, 57
Landau, R. H. 73
Langer, R. E. 508
Lee, T. D. 57, 133, 148, 544
Lefort, M. 9, 32, 250
Leskin, G. A. 115
Lemaire, M. C. 55
Levine, R. D. 13
Liesen, D. 585
Lindstrom, P. J. 69
Lukyanov, V. K. 14

Macek, J. H. 549
Mantzouranis, G. 40
Maruhn, J. A. 135, 258, 260
Mattuck, R. D. 143
McNulty, P. J. 69
McVoy, K. 19
Mekjian, A. 56
Meyer, W. H. 170, 173, 175, 179
Meyerhof, W. E. 584
Migdal, A. B. 133, 143, 146
Mokler, P. H. 584
Moll, E. 590
Moretto, L. G. 10, 212, 224
Morrissey, D. J. 23, 31
Müller, B. 510, 514, 519, 541, 548, 568, 580, 582, 585, 594

Nagamiya, S. 49, 60, 161, 162
Ne'eman, Y. 143
Negele, J. 11, 32
Nemes, M. C. 13
Nezerick, F. A. 115
Nilsson, S. G. 258
Nix, J. R. 5, 57, 59, 66, 68
Nörenberg, W. 213, 215, 224, 245

Olivera, L. F. 15

Pandharpande, V. R. 16
Papp, J. 467
Pauli, W. 259
Pechukas, P. 324
Peitz, H. 549
Pieper, W. 510, 514, 515, 535, 580
Podolsky, B. 259
Pomeranchuk, I. 509, 579
Popov, V. S. 515, 580, 582
Poskanzer, A. M. 52, 64
Preston, M. A. 16
Price, B. 51

Rafelski, J. 79, 524, 529, 531, 538, 574
Randrup, J. 48, 211
Rao, V. K. 264
Reinhard, P. G. 531, 555, 593
Remsberg, L. M. 84
Riedel, C. 250
Rihan, T. H. 555
Rinker, G. A. 537, 555
Robel, M. C. 35
Ruck, V. 134, 148
Rudolf, G. 213
Rybicki, K. 52

Sandoval, A. 67, 163, 192
Sandulescu, A. 261
Sann, H. 269
Schaffer, R. 467, 469
Schied, W. 64, 133, 134, 169, 190
Schmidt, I. A. 73
Schröder, W. U. 9
Schroeder, L. S. 31, 75, 78, 202, 212, 215
Schwinger, J. 531
Scott, D. K. 8, 11
Serber, R. 533

Shibata, T. 31
Siemens, P. J. 60, 62, 279
Siwek-Wilczynska, K. 19
Smith, K. 550, 582
Smith, R. K. 50
Sobel, M. I. 42, 134
Soff, G. 510, 538, 540, 550, 555, 568, 582, 585
Stanley, H. E. 134
Stavinski, V. S. 110, 114
Stelte, N. 75
Stevenson, J. 51
Stock, R. 53, 64, 77, 86, 173
Stöcker, H. 57, 135, 136, 139, 141, 149, 150, 155, 168, 172, 176
Stokstad, R. G. 32, 38
Strutinsky, V. M. 259
Sundaresan, M. K. 540
Swiatecki, W. J. 279
Symons, T. J. 39, 82

Ta-Chung, M. 51, 73
Thibault, C. 81
Thornton, S. T. 75
Toki, H. 6
Tomonaga, S. 37
Tsang, C.-F. 390

Uehling, E. A. 533

Van Bibber, K. 19
Vandenbosch 206, 213, 234
Vary, J. 52
Vasak, D. 134, 157
Vigdor, S. E. 32
Viola, V. E. 34
Viollier, R. 467
Viyogi, Y. P. 23
Volkov, V. V. 9, 25, 39
Voronkov, V. V. 509, 580

Wall, N. S. 74, 75
Webb, C. 5
Weidenmuller, H. H. 9, 10, 326, 475
Weiner, R. 36, 42, 75, 163
Weise, W. 148
Werner, F. G. 509, 579
Westerberg, L. 35
Westfall, G. D. 39, 42, 53
Wichmann, E. H. 535
Wick, G. C. 148
Wietschorke, K. H. 582
Wilczynski, J. 199, 210, 250, 368
Wilkinson, D. H. 14, 57, 83, 86
Wolf, K. 68, 170, 173
Wölfli, W. 549
Wong, C. Y. 42, 133, 135, 303

Yamaji, S. 268
Yano, F. B. 71
Youngblood, D. H. 19, 60

Ziegenhain, K. H. 261, 265

Subject Index

Abrasion model 13, 17
Angular momentum transfer 213

Bag model 150
BBGKY hierarchy 486
Bjorken scaling 106
BKN force 295
Black sphere expression 9
Blast waves 60
Bohr independence hypothesis 474

Centauro events 7, 84
Central collisions 31, 241
  coalescence model 53
  composite emission 53
  experimental methods 241
  fireball model 45
  influence of mass asymmetry 245
  low energies 32
  multiplicities 52
  near Coulomb barrier 241, 243
  nucleon flow 248
  prompt emission 35
  single scattering model 47
Charged vacuum 504, 514, 570
  autoionization model 510
  exact solution 515
  second quantized theory 524
  statistical description 541
Chiral symmetry restoration 148
Classification of states 475
Coherent states 348
  and Fission 369
  and TDHF 364
  and Wigner transforms 357
  classical treatment 351
  nuclear response functions 375
  quantal treatment 348
Colour interaction 153
Compression 77, 155
Cumulative effects 96, 105
  and the parton model 107, 123
  baryon production 115
  experimental data 110

Damping of vibration 494
Deep inelastic scattering (DIS) 11, 304, 323, 367
  DIS induced fission 371
  IPM for 334
  negative scattering angles 368
  statistical model 337
  surface oscillations 332
Delta-ray spectrum 587
Densities in heavy ion reactions 57
Dirac equation for central potentials 507
Dissipation of kinetic energy 198, 235
  angular momentum transfer 213
  first stage in 220
  giant multipole resonances 220
  incomplete relaxation 210
  isovector dipole resonance 222
  light particle emission 231
  particle exchange 211
  quasi-fission 204, 208
  sequential fission 233
  thermalization 225, 230
  three-component model 215
  time scales 217
  total relaxation 203
Dissipative forces 392
  dissipation coefficients 398
  leptodermous theorem 396
Dolichohodous (long-path) approximation 390
Doorway states 220

Electron propagator in external field 531
Energy damping (see Dissipation)
Exotic nuclei 192
Expansion and explosion of compressed nuclei 159

Fermium fission 261
Fireball model 45
Fireball temperature 5
Fokker–Planck equation 274
Fragmentation of projectile 452
Fragmentation theory 257
Fusion cross-section in TDHF 300

Gaussian energy spectra 11
  saturation of width 13
Giant multipole resonances 220, 222, 493
Giant quark bag (GQB) model 150
G-matrix 290

Hadron spectrum tests 6, 79, 190
Head shocks 172, 181
Highly inelastic bounce-off (HIBO) 173, 176
Hot-spot formation 37, 41
Hydrodynamical model 65, 134
  equation of motion 135
  TDHF for 310
Hypernuclei 193

Inclusive cross-sections 97
Independent particle model (IPM) 283, 334
Infinite momentum frame (IMF) 118
  and the parton model 121
Influence functional 324, 325
  and Langevin's equation 328
  and the IPM 334
  for coupled oscillators 329
Inner-shell ionization 584

JINR — relativistic nuclear physics at 126

Landau kinetic equation 490
Langevin equation 327, 341
Langevin force 274, 327
Leptodermous approximation 384
Limiting fragmentation 99
Limiting temperature 190
Long-path approximation 390

Mach shocks 172, 174, 180, 182, 184, 186
Many-body equations 485
  classical reduction 489

Hartree approximation 487
moment expansion 490
Multi-step reactions 473, 477, 566

Navier–Stokes equation 135
Non-linear electrodynamics 538
Nuclear equation of state 139, 157
Nuclear fluid dynamics 134, 164, 167
and the TDHF 310
Nuclear influence functional 339
Nuclear response functions 375
Nuclear shape equation 401
Nuclear transport coefficients 279, 355
Nucleon-nucleus reactions 467, 472
Nuclides at stability limit 79, 82

One-body dissipation theory 392
leptodermous theorem 396
Over-critical Dirac Hamiltonian 510, 515, 520, 524, 570, 579

Pair creation 589
Participant-spectator processes 11
Path integrals for DIS 323, 328, 332
Peripheral collisions 9
abrasion model 13, 17
collective modes 27
ground state correlations 23
scaling and factorization 30
TDHF calculation 18
thermal mode 14
Phase transition to superdense state 142, 148
Pion condensate 6, 78, 134, 188
Pion interferometry 71, 78
Pion production 157, 465
Pole approximation 103
Position emission 550, 554, 564
Potential energy 385, 388, 390
Pre-equilibrium emission 226, 230
Projectile fragmentation 452

Quadrupole vibration 493
Quantum chromodynamics (QCD) 153
Quantum fluctuations 257, 260, 264, 270
Quark clusters 73
Quark matter 149
Quasi-fission 203, 208
Quasi-molecules 547, 581

Random phase approximation (RPA) 293, 316
Relativistic many-body wave functions 117
Relativistic shock equation 137, 180

Scale invariance and the SRO Model 101
Shock waves 64, 158, 169, 172
Short-range order (SRO) model 99
Single nucleon scattering model 47
Skyrme force 290
Space-time dimensions of interaction 70
Stability limits 81
Statistical model for DIS 337, 357, 364
Statistical multi-step reactions 473, 477
Superdense nuclei 142, 148, 166
Surface oscillations and DIS 332, 348, 357, 364

Thermal conductivity 165
Time-dependent Hartree–Fock (TDHF) method 18, 283
DIS 305
effective interaction 290
fundamental assumption 286
fluid dynamics 310
numerical methods 295
stability of 316
two-body effects 318
typical results 297
versus surface excitation model 364
Time scales 36, 44, 276, 493
Transport theories 273
Two-centre shell model 258

Vacuum charge 529
Vacuum decay 149, 503, 510, 515, 524
Vacuum polarization 529, 535
Viscosity 164
Vlasov equation 489

Wall formula 393, 401
Wall-plus-window formula 405
Weizäcker–Williams method 455, 459, 464
Wigner functions 311, 357, 486
Window formula 393, 404